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2188	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/519,665	LIM ET AL.
	Examiner	Art Unit	
	Gary W. Cygiel	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _29 December 2004_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-5 and 7-23_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-5 and 7-23_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _29 December 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Status of Claims

1.   Claim 6 has been cancelled.

2.   Claims 13-22 have been renumbered as Claims 13-23.

3.   Claims 1-5 and 7-23 are the subject of this office action.

Claim Objections

4.   Claim 12 objected to under 37 CFR 1.75(c), as being of improper dependent

form for failing to further limit the subject matter of a previous claim. Applicant is

required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

dependent form, or rewrite the claim(s) in independent form.

Claim 12 recites the same language as the claim from which it is dependent.

5.   The numbering of claims is not in accordance with 37 CFR 1.126 which requires

the original numbering of the claims to be preserved throughout the prosecution. When

claims are canceled, the remaining claims must not be renumbered. When new claims

are presented, they must be numbered consecutively beginning with the number next

following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 13-22 have been renumbered 13-23.

Prior Art Rejections

6.   Claim 13 was listed twice. For examination purposes the renumbered Claims 14

and 16-20 are assumed to be dependent on the renumbered Claim 13 because the

renumbered Claims would otherwise include limitations which generate antecedent

problems.

7.   All dependencies have been amended to reflect the examiners assumptions.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9.   Claims 1-5,8-17 and 19-23 rejected under 35 U.S.C. 102(b) as being anticipated

by Kaku (US Patent No. 6,279,097).

Consider **Claim 1**,

A method of associating look-up table addresses with MAC--media access control

(MAC) addresses, the method including for successive MAC addresses A_0:

using A_0 to generate $y+1$ look-up table addresses H_0, H_1, H_2,...,H_y, where y is an

integer greater than or equal to one (Kaku:Abstract: selecting a second set of bits in

response to there not being an unoccupied memory slot in the memory location pointed

to by the first set of bits. Fig 1 shows how H_0, H_1, H_2,...,H_y are generated based on A_0.),

wherein each of the addresses H_0, H_1, H_2,...,H_y is obtained from the address A_0 by first

forming a respective string A_0 having the same number of bits as A_0, and then applying the algorithm by which H_0 is obtained from A_0 (Kaku:Fig 1:Item 22-26, address *is* a string of length equal to itself.); and

according to at least one criterion associating the address A_0 with a selected one of the addresses H_0, H_1, H_2,...,H_y (Fig 5A-C,Col 8:Lines 25-36, address is stored in first unoccupied location.).

Consider **Claim 2,**

A method according to claim 1 wherein the criterion is that A_0 is associated with H_n where n is the smallest integer in the range 0 to y such that there is presently no MAC address associated with the address H_n (Fig 5A-C,Col 8:Lines 25-36, address is stored in first unoccupied location. See specifically Fig 5B.).

Consider **Claim 3,**

A method according to claim 1 wherein the criterion is that A_0 is associated with H_n where n is the smallest integer in the range 0 to y such that the number of MAC addresses associated with the address H_n is less than a predetermined integer (Kaku:Fig 5A-C,Col 8:Lines 25-36, address is stored in first unoccupied location. See specifically Fig 5B. Col 7:Line 56-Col 8:Line 4. System uses buckets which can store up to 8 addresses in a single bucket.).

Consider **Claim 4,**

A method according to claim 1 wherein the addresses H_1 to H_y are generated

successively upon it being found that the preceding H_n, does not meet a criterion (See

Fig 5b and associated description on barrel shifter.).

Consider **Claim 5**,

A method according to claim 4 wherein the value of y is predetermined, whereby the

maximum number of addresses H_0, H_1, H_2,...,H_y which are generated is no more than a

predetermined number, even if none of these addresses meets the criterion (Col 9:Lines

6-22, The barrel shifter creates a number from either 10 or 13 bits from a pool of 32 bits,

his provides a maximum limit on the number of maximum addresses from each CRC of

32 maximum addresses. The lookup table has a maximum based on the number of bits

(either 10 base and 3 bucket or 13 base) selected by the barrel shifter of 8192 memory

slots. This is independent of meeting any criterion.).

Consider **Claim 8**,

A switch (Col 10:Lines 46-59) including a memory for defining a look-up table having a

plurality of addresses and a processor for associating MAC addresses with addresses

of the look-up table (Kaku:Fig 1, processors are required elements of computing

devices.), the processor being arranged to use each MAC address A_0 to generate y+1

look-up table addresses H_0, H_1, H_2,...,H_y for y an integer greater than or equal to one

(Kaku:Abstract: selecting a second set of bits in response to there not being an

unoccupied memory slot in the memory location pointed to by the first set of bits. Fig 1

shows how H_0, H_1, H_2,...,H_y are generated based on A_0.), wherein each of the addresses H_0, H_1, H_2,...,H_y is obtained from the address A_0 by first forming a respective string A_n having the same number of bits as A_0, and then applying the algorithm by which H_0 is obtained from A_0, and according to at least one criterion to associate the address A_0 (Kaku:Fig 1:Item 22-26, address *is* a string of length equal to itself.) with a selected one of the addresses H_0, H_1, H_2,...,H_y (Kaku:Fig 1:Item 22-26, address *is* a string of length equal to itself.).

Consider **Claim 9**,

A method according to claim 2 wherein the addresses H_1 to H_y are generated successively upon it being found that the preceding H_n does not meet a criterion (See Fig 5b and associated description on barrel shifter.).

Consider **Claim 10**,

A method according to claim 8 wherein the addresses H_1 to H_y are generated successively upon it being found that the preceding H_n does not meet a criterion (See Fig 5b and associated description on barrel shifter.).

Consider **Claim 11**,

A method according to claim 3 wherein the addresses H_1 to H_y are generated successively upon it being found that the preceding H. does not meet a criterion (See Fig 5b and associated description on barrel shifter.).

Consider **Claim 12**,

A method according to claim 10 wherein the addresses H_1 to H_y are generated

successively upon it being found that the preceding H_n does not meet a criterion (See

Fig 5b and associated description on barrel shifter.).

Consider **Claims 13-15**,

A method of associating look-up table addresses with media access control (MAC)

addresses, the method comprising:

receiving a MAC address (Kaku:Fig 1:Item 48);

generating a first look-up table address based upon the MAC address, the first

look-up address being generated using an algorithm (Kaku:Fig 1:Items 24-26);

determining whether the first/second/third look-up table address is occupied; and

if the first look-up table address is occupied (Kaku:Fig 3,Col 6:Lines 17-19),

generating a second look-up table address by forming a string having the same

number of bits as the MAC address and applying the algorithm to the string (Kaku:Fig

5A-B, if first address is occupied, then second/third/fourth address is generated using

the string with the algorithm applied.).

Consider **Claim 16**,

The method of claim 12 wherein determining whether the first look-up table address is

occupied comprises determining whether any other MAC address is associated with the

first look-up table address such that only one MAC address is associated with any given look-up table address (Kaku:Fig 3:Item 63, occupied bit indicates if address space is occupied by a MAC address.).

Consider **Claim 17**,

The method of claim 12 wherein determining whether the first look-up table address is occupied comprises determining whether fewer than n MAC addresses associated with the first look-up table address such that the number of MAC addresses associated with the first look-up table address is less than n, wherein n is an integer greater than one (Kaku:Fig 3:Item 63, occupied bit indicates if address space is occupied by a MAC address.).

Consider **Claim 19**,

The method of claim 12 wherein generating a first look-up table address comprises hashing the MAC address with a Cyclic Redundancy Code (Kaku:Col 4:Lines 26-34).

Consider **Claim 20**,

The method of claim 12 and further comprising, if the first look-up table address is not occupied, associating the MAC address with the first look-up table address (Kaku:Col 8:Lines 26-36).

Consider **Claim 21**,

The method of claim 20 wherein the step of generating a second look-up table address is not performed if the first look-up table address is not occupied (Kaku:Fig 5A-B, if address is not occupied then address is written to and system returns to the idle state.).

Consider **Claim 22**,

The method of extracting information related to a media access control (MAC) address, the method comprising:

receiving a MAC address (Kaku:Fig 1:Item 48);

generating a first look-up table address by applying an algorithm to the MAC address (Kaku:Fig 1:Items 24-26);

determining whether the first look-up table address is associated with the MAC address (Kaku:Fig 5C:Item 72);

if the first look-up table address is associated with the MAC address, extracting information related to the MAC address from a look-up table using the first look-up table address (Kaku:Col 7:Lines 37-43, control state machine extracts information to determine a match if the hashing algorithm results in the MAC address being associated with the hashed look-up table address.);

if the first look-up table address is not associated with the MAC address, generating a second look-up table address by forming a string having the same number of bits as the MAC address and applying the algorithm to the string (Kaku:Fig 5A-B, if first address is occupied, then second address is generated using the string with the algorithm applied.);

determining whether the second look-up table address is associated with the

MAC address (Kaku:Fig 5C:Item 72); and

if the second look-up table address is associated with the MAC address,

extracting information related to the MAC address from the look-up table using the

second look-up table address(Kaku:Col 7:Lines 37-43, control state machine extracts

information to determine a match if the hashing algorithm results in the MAC address

being associated with the hashed look-up table address.).

Consider **Claim 23**,

The method of claim 22 wherein determining whether the first look-up table address is

associated with the MAC address comprises examining correspondence data at the first

look-up table address in the look-up table (Kaku:Fig 5C:Item 72, data must be examined

to determine a match exists.).

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

11.   The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 7 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Kaku (US Patent No. 6,279,097).

Consider **Claim 7**,

Kaku teaches the method according to claim 1, but does not explicitly disclose wherein each A_n. is obtained by modulating a string S_n obtained by a selection from A_0 with a respective set of Walsh codes.

The examiner takes official notice of the fact that Walsh codes are well known design variants of CRC codes. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Walsh codes in the system of Kaku because they are an obvious variant of a CRC and are notoriously well known in the communication arts as applied to data transmission over a network.

Consider **Claim 18**,

Kaku teaches the method of claim 12 wherein generating a second look-up table address comprises modulating the string with a Walsh code.

The examiner takes official notice of the fact that Walsh codes are well known design variants of CRC codes. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Walsh codes in the system of Kaku

because they are an obvious variant of a CRC and are notoriously well known in the

communication arts as applied to data transmission over a network.

Conclusion

13.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

   [A] Warren (US Patent No. 6,690,667) – Ethernet switch using hash tables.
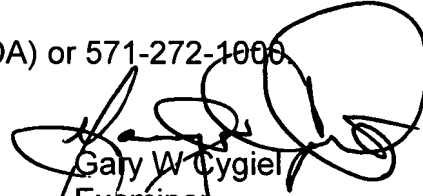
   [B] Chang et al. (US Patent No. 5,633,858) – Reducing conflict in hashing tables.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Gary W. Cygiel whose telephone number is (571)270-

1170. The examiner can normally be reached on Monday through Thursdays 8:00am-

12:00pm EST.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hyung Sough can be reached on (571)272-6799. The fax phone number for

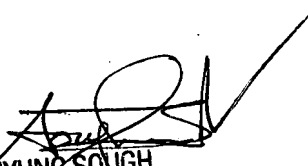the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gary W Cygiel
Examiner
Art Unit 2188

GWC 7/10/2007

HYUNG SOUGH
SUPERVISORY PATENT EVAMINER

7/12/07